APPENDIX 3

PUBLIC COMMENT TO ENVIRONMENTAL ASSESSMENT AND BLM RESPONSE

On February 2, 2004, a pre-decision letter, along with a copy of the EA and appendixes and a preliminary FONSI (Finding of No Significant Impact), were sent to 6 individuals, groups and agencies that had expressed an interest in the project (Project Record, Document # 26). Also, a legal notice requesting public comment to the EA and preliminary FONSI appeared in the *Headlight Herald* Newspaper of Tillamook (Project Record, Document #27 and 29). The EA and preliminary FONSI were released for public comment from February 4, 2004 to March 5, 2004. As a result of this effort, one letter was received (Project Record Document #30). All comments presented in this document are direct quotes from the letter received and were categorized into three areas: 1) Failure to Analyze and Retain Current Snag Levels, 2) New and Reconstructed Roads, and 3) Thinning is Not Variable Density. These comments were considered by the Tillamook Field Manager in reaching a final decision for this project.

Document 30 - Jeremy Hall of the Oregon Natural Resources Council

Failure to Analyze and Retain Current Snag Levels

Comment a: *When it comes to promoting late-successional habitat, the structure that takes the longest time to develop is large snags and woody debris. BLM only vaguely discusses the level of large soft snags ("few snags... occur in the project area" (14); only 2% of the total coarse wood volume is from snags and only 1% of the snag are large soft snags (34).) In addition, the BLM appears just as concerned about the loss of recruitment of small, hard snags by thinning to capture the mortality of suppressed trees a few decades old than the loss of large, soft snags due to yarding corridors and safety concerns…*

BLM response: In terms of snag and down wood management, we are unclear why you find our project troubling. You assert that we only vaguely discuss the level of "soft" snags. We feel that we have made it reasonably clear that there are very few snags in this project area, soft or otherwise, and that those that are there are quite small. We pointed out that a large portion of the large down wood found in the project area is from large snags that were felled during the salvage operations following the Tillamook burns (EA p. 34). Exceedingly few large snags were left standing. We disclosed that 2% of the total volume of coarse wood is in the form of snags and that they averaged approximately 11 inches in diameter and of that 2% total, only 1% (or approximately 1 cubic foot per acre) is in decay class 4 or 5. We are very concerned about snag management in this project which is why we plan to create snags after harvest. We also will include contract language consistent with the design feature found on page 10 of the EA that states under item #8, "… Protect existing CWD, including snags to the extent possible." In addition, the silvicultural prescription (project record – document #16) that was developed for this project and that will guide the marking of the density management calls for protecting snags larger than 18 inches by surrounding them with reserve trees. However, we are realistic; we intend to harvest trees in this density management project for which you have expressed your

support. The harvest of trees does require that certain safeguards for workers be in place, which does mean that some trees or snags that are found to be hazardous to workers may be cut or knocked down. The snags we are talking about are of limited habitat value. They are not expected to stand very long regardless of harvest activity and they do not provide habitat for the pileated woodpecker, the most important primary excavator in the northern coast range. We plan to implement limited snag creation in this area, not to create superior habitat immediately after harvest, but to keep some newer, larger snags on the landscape until such time larger trees can be converted to snags either naturally or by planned action in the future.

Comment b: …*Determining pileated woodpeckers population potential based on nesting sites alone will not provide adequate habitat for viable populations of this species, or secondarily, the habitat they provide to other cavity nesters. This new information is not recognized in current management requirements at the plan or project level.*

BLM response: This project did not attempt to address pileated woodpecker populations. We are aware of the importance of the pileated woodpecker as a keystone species in this area, but there simply is not suitable habitat for pileateds in the project area at this time. One of the objectives of this project is to create spacing to allow for accelerated tree growth. By allowing for greater tree growth and limiting the number of trees converted to snags now, we expect to have an ample supply of trees in the future that will be large enough to be good suitable pileated woodpecker habitat when converted to snags. As for addressing pileated woodpeckers at the plan level, the BLM is currently gearing up to produce a new plan and Environmental Impact Statement with an expected completion date of 2008. We hope you will participate in the development of the plan through your comments about aspects of the plan that concern you.

Comment c: *RMP and NFP are not adequate to protect legacy features and the species dependent upon the habitat snags and CWD provide. The RMP and NFP rely on outdated data that is no longer valid, especially due the presence of more thorough research and management recommendations. Legacy features of native forests are structurally the most important for habitat and the most difficult to replace if they are lost. The BLM is obligated to use the best available science to protect public resources. The Northwest Forest Plan ROD is clear that "a renewable supply of large down logs is critical for maintaining populations of fungi, arthropods, bryophytes and various other organisms... Models for computing expected numbers and sizes of logs should be developed for groups of plant associations and stand types which can be used as a baseline for managers to develop prescriptions for landscape management." (C-40).*

BLM response: The BLM has not been ignoring the best available science when developing and analyzing projects as your comment suggests. The Late Successional Reserve Assessment (LSRA) that was developed for the area where this project would occur used data developed by some of the researchers you cite such as Thomas Spies, Jerry Franklin and Pamela Wright. The LSRA recognizes that significant levels of coarse wood are needed in a healthy functioning habitat environment. However, these young stands that we are working in are not in a condition to provide vast amounts of CWD at this time, therefore we opted to produce only a moderate amount of new CWD at this time and most all of it in the form of snags. We intend to reserve all of the legacy features that currently occur here which tend to be in the form of large down logs. These logs are not merchantable and it is not in the best interest of the logging contractor to

bother with them since many of them are so large that it would take large equipment and a fair amount of time just to move them. One of our primary objectives for the density management thinning is to grow large trees and with that be able to provide a renewable supply of *large* down logs in the future; an objective that cannot be met at this time given the existing stand conditions.

Comment d: *The ROD clearly states that the 240 linear feet of logs per acre greater than or equal to 20 inches in diameter standard is to be used until better, vegetation-type specific standards are developed. This model is currently available. BLM must use the DecAID decision support tool and consider all the many values of snags and down wood presented in Rose, C.L., Marcot, B.G., Mellen, T.K., Ohmann, J.L.., Waddell, K.L., Lindely, D.L.. and B. Schricber. 2001. Decaying Wood in Pacific Northwest Forests: Concepts and Tools for Habitat Management, Chapter 24 in Wildlife-Habitat Relationships in Oregon and Washington (Johnson, D. H. and T. A. O'Neil OSU Press. 2001) … Of particular interest is the section entitled "Lessons learned over the last 15 years." Note the authors call managing snags by biological potential "flawed". Note that the authors, including a member of the "Gang of Four" and other highly respected members of the community of Pacific Northwest forest researchers frequently call out the 1979 Thomas study (which BLM relies on for this project, EA page 14) as outdated and inadequate. The 240/20 standard is based largely on 1979 Thomas et al…*

BLM response: We cite Thomas et.al. in order to be consistent with our FEIS and not be arbitrary in our prescriptions and assessments. For the Southern Flame project we did not use the "240/20" standard which were prescribed in the RMP for matrix lands. We used the Late-Successional Reserve Assessment for the Northern Coast Range to assess the habitat conditions in the project area and to develop our prescription for the area. We recognize that models such as DecAid are out there and we are familiar with them. However, due to the current condition of the stands that we intend to work in and the historical events that shaped that current condition, we do not believe that the type of modeling found in DecAid would provide us with any more options than we currently have. We are not trying to manage for a specific set of species due to the complexity of the task, but rather trying to set the stage for natural processes to provide improved habitat for a wide array of species in a shorter time frame than we believe would occur without this management action. As we have stated in the EA and earlier in this response document, we intend to preserve as many of the legacy features as is reasonably possible, which we expect will be nearly all of them.

Comment e: *Other important research that BLM must use to develop projects is PNW Research Station, "Dead and Dying Trees: Essential for Life in the Forest," Science Findings, Nov. 1999 ("Management implications: Current direction for providing wildlife habitat on public forest lands does not reflect findings from research since 1979; more snags and dead wood structures are required for foraging, denning, nesting, and roosting than previously thought.")…*

BLM response: We are aware of this PNW publication. As stated, we are aware of the importance of dead wood both in the form of snags and down wood for maintaining a healthy ecosystem. We do not deny this. It is not clear to us what you would like us to do with this information. We can only work with what we have. We cannot create the ideal functioning ecosystem in 35 -55 year old forest stands where virtually all of the legacy snags were cut and much of the ground was disturbed a number of times during salvage operations. We can only

create a modest amount of new CWD now while providing an opportunity for these stands to grow rapidly so that in the future more *larger* CWD can be created. We are planning a density management that is light enough to allow for many trees to be available in the future to become CWD features, while heavy enough to realize a growth response from the residual trees. This is a balancing act that cannot be effectively modeled, it takes a considerable amount of professional judgment and we believe that we are on the right track.

Comment f: *Snags should be carefully inventoried by species, size, decay status, quality, and location during project planning, and they should be treated as "special habitats" and given special protection during project planning and implementation (i.e. keep workers out of the vicinity of snags so that OSHA doesn't order them cut). For instance, the May 2001 Wolf Vegetation Management Project on the Wallowa-Whitman National Forest includes a mitigation measure protecting trees from being harvested if they are near hazardous snags >15 inches dbh. The NEPA document does not adequately address the need to protect and provide snag habitat.*

BLM response: We disagree with your conclusion. Part of the design features of the proposed action requires that the purchaser "…Protect existing CWD, including snags to the extent possible." (EA page 10, item #8). We have also included guidance in the silvicultural prescription that would surround snags 18 inches or greater with live reserve trees. You cite a project that is pertinent to northeastern Oregon that has only limited application to our Westside forest situation. As stated, we have very few snags in the project area currently, most are much smaller than 15 inches in diameter and very few are providing much long term snag habitat in the area. We have inventoried our snags in this project area with data that includes species, diameter, height, and decay class. That information was used in the development of the project prescription and is part of the project record. Most of the snag habitat that currently exist is so small that it has limited long term value which does not warrant extraordinary efforts to save if worker safety would be compromised. We expect that the best snag habitat will be protected proactively during the density management marking process and that many of the small snags will be preserved where they do not constitute a safety hazard.

New and Reconstructed Roads

Comment g: *We recognize that the BLM did analyze not building any new roads in response to our scooping* [sic] *comments (38-41). We urge the BLM to issue a decision notice that selects a course of action does not build new "temporary" roads.*

After careful review of the analysis, the decision has been made to implement Alternative 1 (proposed action) without incorporating any of the potential mitigation measures, including the "no new roads" mitigation.

While there could be a lessening of impacts by incorporating mitigation measures, there was nothing either in the analysis or public comments that offered new or overlooked information that would indicate that the anticipated impacts would be different than those disclosed. We feel that the benefits of treating as much of the proposed action area as is reasonably possible out weigh the expected negative impacts. There are many acres within the Nestucca watershed that will not be treated by density management, including the 150 acres in this project that will only

be treated by snag and CWD creation. We proposed at the outset to treat 820 acres rather than 520 because it would better meet our purpose and need for action stated in Section 1.2 of the EA. We analyzed the impacts of treating 820 acres of density management verses 520 acres and found that the relative difference in impacts from road construction in relation to acres treated were approximately ½ of 1% of the proposed area treated; a very small amount. In addition, there are a couple of points to keep in mind; first, over 90% of the new road construction would occur on ridge top locations where soil productivity is naturally lower. Secondly, because roads would generally be constructed on ridges, we do not expect any of the new roads to intercept any ground water flow resulting in a negligible impact on water quality. Table 6 found on page 40 of the EA shows a comparison of the expected impacts to soil productivity of the proposed action and the No New Roads potential mitigation. Although there is a 4.5 acre difference in total detrimental soil disturbance, the relative loss in soil productivity between the two actions is considerably less than 1%. In short, we feel that in relation to the benefit we expect to realize from the proposed action, the difference in the impacts between the proposed action and the potential mitigation is not nearly large enough as to show a clear distinction for the basis of choice.

Comment h: *"...[R]econstructing and constructing miles of roads in landscapes with high road densities in a climate which federal agencies have dwindling resources for road maintenance is unacceptable. …Regardless of mitigation measures (e.g. following BMPs and implementing decommissioning), the impact of this level of disturbance has lasting impacts that federal land managers generally fail to disclose and analyze fully. As in the case of this project, certain short term and long term degradation to public forests are downplayed and prospective and uncertain benefits are used to justify implementing the proposed action."*

BLM response: We do believe that the overall benefits to the resource from the activity clearly outweigh the potential impacts resulting from the activity itself. We disagree with your statement that we downplayed impacts and overplayed benefits to justify the project. In assessing the net benefits of forest management activities, BLM fully evaluated and disclosed both immediate and future impacts. Design features and BMPs have been incorporated to avoid or reduce the potential impacts of the proposed action. Expected impacts that would remain after the design features and BMP's are applied are clearly stated. For example we state on page 26 of the EA that the soil productivity on roads would likely remain low for decades even after they have been subsoiled.

Comment i: *"BLM assumes that temporary and semi-permanent new roads will have no effect because they are temporary. We believe BLM has shown no scientific evidence for this assumption. In fact scientific research has shown exactly the opposite."*

BLM response: The EA never claims that road building would have no effect. In fact the EA states on page 26 that road construction and reconstruction would result in "*…about 5 acres of detrimental soil disturbance.*" While amelioration measures would help to minimize the effects ("*Following project completion, all project roads newly constructed and reconstructed would be decommissioned…*" "*Subsoiling would increase water infiltration and prepare a more favorable environment for plants and soil organisms*."), there would still be effects ("*Soil productivity on*

these treated roads will likely remain low for decades." And "*The soil productivity on rocked roads and/or deeply excavated roads is likely to remain minimal for the foreseeable future*.").

Comment j: S*ome of the objectives developed in the applicable LSRA and described in the EA as justification for thinning these stands are not met by road construction. Roading retards both the minimize fragmentation and increase connectivity goals described on 36 of the EA.*

BLM response: The discussions in the LSRA concerning fragmentation and connectivity pertain to large contiguous forest stands, those that are not interrupted by major changes in habitat, land use, or seral stage (i.e. clearcuts). The goals of minimizing fragmentation and increasing connectivity have the most relevance to large far ranging species, in particular the spotted owl in our area. Although there have been some discussion about the impacts that roads have on spotted owls, those roads tend to be those permanent roads with wide rights-of-way. The roads that would be constructed or reconstructed for this density management project would not have wide rights-of-way, in many cases narrower than the spacing between trees after harvest. We expect the canopy to close over these roads within a decade and therefore do not feel that this type of road work would contribute to fragmentation or preclude the increase in connectivity of forest stands.

Comment k: *While the BLM states, "in general, new roads would be located on stable ridges away from riparian areas", (10) there are exceptions. The BLM only discloses the "main exception", a road segment in Unit 8-2 would require 300' of sidehill construction on a 40%-70% slope. How many other exceptions are there?*

BLM response: We anticipate that in Unit 9-1 approximately 500 feet of new temporary road would be built on a ridgetop in a Riparian Reserve (the Riparian Reserve extends over the ridge into the adjacent drainage) and about 500 feet of new temporary road on a 10 to 30% sideslope outside of Riparian Reserve. In addition, in Unit 8-1 there would be about 100 feet of new temporary road built on a ridgetop in a Riparian Reserve.

Comment l: "*What does "minimum excavation and fill" mean?*

BLM response: It means that due to proposed road locations (generally gentle sloping benches and ridgetops) and road design (mostly following the grade or outsloping – no "crown" and "ditch") there should be very little excavation and fill. Excavations would generally result in less than 3 or 4 feet high cutbanks.

Comment m: *BLM believes that removing small trees on roadside cut banks as part of haul road maintenance "would decrease the incidence of surficial slumping, the most common type of road slope failure." (22,) But the BLM fails to disclose the that that* (sic) *new road construction will result in more cut banks that will increase the locations with risk of surficial slumping or how the BLM will fund and implement maintenance of these cut banks to prevent such sediment producing events in the long term.*

BLM response: We do not anticipate any slope failure from the proposed new road construction. Unlike the existing haul roads, which cross unstable terrain and often associated with steep

cutbanks and "crown" and "ditch" configuration, new temporary roads would be located mainly on stable, gentle sloping benches and ridgetops. Little excavation or fill is anticipated. Prior to project completion, all project roads that will no longer be needed would be prepared to avoid future maintenance needs and be left in a stable, "erosion-resistant" condition. Actions would include but are not limited to decompacting the roadbed, waterbarring, removing culverts, seeding or planting with native vegetation, and blocking to all vehicle traffic.

Comment n: *"Reconstruction of a road-stream crossing in unit 6-1 would likely move a small amount (<1/2 cubic yard) of sediment into a low gradient, non-fish bearing stream. Little downstream movement of sediment is expected, none of it to a fish bearing stream." (22) What modeling or analysis was used to determine that the road reconstruction would result in such a small amount of sediment?*

BLM response: First of all, there is an error in the EA in the second paragraph on page 22. The unit cited that you refer to here should be unit 7-1, not 6-1. Now to address your comment; our prediction of low sediment delivery is based upon the following facts: 1) The existing road and intermittent stream are both low gradient (2 to 6%); 2) The channel is small (less than 1½ feet wide), poorly defined, and much of it is covered with vegetation or woody debris); 3) Stream high flows originate from surface flows (not groundwater), are very low (less than ½ cubic foot per minute) and are sporadic, occurring during and following large winter storm events; 4) BMPs, such as limiting road work to the dry season, constructing water bars above and below the crossing prior to fall rains, and the reclamation of the road at the completion of the project (decompacted, waterbarred, seeded and blocked to vehicle traffic) would be implemented to minimize soil and water impacts during and following reconstruction; and 5) All road use in this unit would be restricted to the dry season.

Comment o: *BLM believes that "project design features that require seeding or planting highly disturbed areas with native species would allow natural plant success to proceed therefore ameliorating the invasion of non-native species." Yet when discussing the decommissioning practices on page 26 [of the EA,] there is no mentioning of seeding the decommissioned roads. These highly disturbed surfaces are, as you note, a "Favorable environment for plants." (26) The most successful colonizers of these favorable environments are invasive weeds that you admit are present in the project area and are likely to be spread as a result of this project.*

BLM response: The text you cite on page 26 of the EA is contained in the effects analysis of the soil resources section. That section is naturally soil centric and is not the section that describes the proposed action. The description of the proposed action (Alternative 1) that was analyzed in the EA is found in Chapter 2. On page 10 of the EA, under item #2, you will find the description of the action as it pertains to road decommissioning, and includes the action to plant or seed native vegetation on the decompacted road surface during the appropriate season.

Comment p: *"BLM claims that the direct sediment input from timber harvest in addition to any other sources of sediment will be sufficiently mitigated by the use of Best Management Practices (BMPs). While the use of BMPs is to be encouraged in timber projects, we note that the uses of these measures are not themselves sufficient to ensure compliance with the Clean Water Act*

(CWA). Northwest Indian Cemetery Protective Ass'n v. Peterson 795 F.2d 688, 697 (9th Cir. 1986) (holding that compliance with BMPs does not equate to compliance with the CWA). Indeed, the BLM assumes the implementation of BMPs will sufficiently mitigate any problems that the proposed project will have on aquatic system, but offers no proof of this assertion. Consequently, this assumption is flawed, pro forma and violates the law.

BLM response: We are using Best Management Practices as standard operating procedures in our projects. Our analysis shows that impacts from the proposed action are expected to be within the scope of those analyzed in the RMP/FEIS. Best Management Practices contained in Appendix G of the Salem District RMP/FEIS were designed specifically to provide compliance with the Clean Water Act of 1972 (as amended). We recognize that merely incorporating them into project design does not guarantee compliance with the Act but we have found that these practices have resulted in sound soil and water quality management. In fact the Nestucca Bay Watershed TMDL (Total Maximum Daily Load) and WQMP (Water Quality Management Plan) dated April 2002, prepared by the Oregon Department of Environmental Quality (DEQ), with input and cooperation from BLM and others, cites the Northwest Forest Plan (the basis of our RMP/FEIS) as a "Regulatory/Structured" program that provides "Reasonable Assurance of Implementation" of the WQMP, one of the critical elements of a WQMP. The document states "*Under the Northwest Forest Plan, strict limits are placed on management activities ranging from road building to harvest. These limits are generally more restrictive than existing state regulations and provide clear protection for riparian forest areas central to the allocations in the TMDLs…"*

There is an inherent difficulty in analyzing impacts to water quality from sedimentation stemming from the lack of a quantifiable standard. In fact the EPA and State of Oregon do not have numeric water quality standards for streambed fines. Excessive fine sediment is addressed through application of state narrative criteria which restricts "the formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits deleterious to fish or other…" beneficial uses (Nestucca Bay Watershed TMDL, pg. 64). As a surrogate for purposes of listing water bodies on the 303(d) list, DEQ adopted a target of 20% streambed fines as an indicator of fine sediment impairment to salmonids (the most sensitive "resident biological community"). The sedimentation overview found in the TMDL states… *"Analysis of the bottom sediments in the upper Nestucca Watershed indicates that this area has recovered substantially from a variety of practices and events, and targets for instream fine sediments are currently met."*

In summary, we feel that recognition of our RMP/FEIS by DEQ as a plan that is assuring compliance with the WQMP for the Nestucca watershed, along with the improving trend in water quality in the upper Nestucca gives us confidence that we are not contributing to water quality impairment and that we are in compliance with the Clean Water Act.

Comment q: *…Until the BLM is able to substantiate its proposed mitigation measures – i.e., that they are appropriate, will be implemented, and will be effective – the agency must withdraw the proposed project"*

BLM response: We developed the potential mitigation measures to offer the Decision Maker other options to further reduce environmental impacts stemming from the proposed action. Some of the potential mitigation measures originated from the staff and one was developed in response to your comments on other projects. We believe that the measures are good ones that were worthy of consideration, but after analysis and comparison to the desired objectives of the project, including economic considerations, we did not believe that the implementation of any of them would improve the project substantially.

For the sake of rhetorical discussion, we do not believe that the examples you cite would apply to our situation. We did not rely on our mitigation measures to reach a FONSI. We developed a project that we feel accomplishes our goals and objectives with a minimal amount of impact, without the implementation of mitigation measures. We did analyze the impacts of the possible implementation of mitigation measures and found that they would not improve the project enough to warrant including in the Decision.

Thinning is not variable density

Comment r: *…However, BLM cannot expect to thin every acre of dense, mid-seral, managed stands in LSR's,*

BLM response: We are not planning on thinning every acre of dense, mid-seral, managed stands in LSR's.

Comment s: *The areas that BLM does treat should be thinned in a manner that retains options for the future, follows the best available science, diversifies spacing and structure between and among stands, and does not result in negative, long term impacts (as discussed above about roading). BLM should design thinning prescriptions that do more than clump a few trees and otherwise thin from below to capture mortality and release leave trees for twenty years.*

BLM response: The silvicultural prescription for this proposed density management project contains a variety of provisions to enhance species, spacing, and structural diversity, including:

- Thinning primarily from the Douglas-fir component in a variable-spaced manner which gives some trees more room to grow and other trees less room, creating a wider array of niches than conventional thinning.
- Retention of conifers other than Douglas-fir and hardwoods to encourage mixed-species stands.
- Retention of those Douglas-fir trees that demonstrate a relatively greater degree of tolerance to Swiss needle cast.
- Generally retaining primarily the larger-diameter conifers with relatively high live crown ratios and healthy appearing crowns (preferably with live crown ratios exceeding 35%) even at the expense of spacing
- Not selecting conifers trees greater than 20 inches dbh for removal regardless of the density in a particular area, and if any of these trees are cut, they are to remain on site for coarse wood enhancement.
- Retention of existing western hemlock and western redcedar understory trees.
- Reserving large trees with deformities at least in proportion to their occurrence in the stand.

- Reserving unthinned clumps of 12 to 15 trees at a rate of 1 clump per 5 acres and, where possible, centered on desirable habitat features such as large snags or concentrations of large down wood.
- Planting the area within a 100-foot radius downhill of the landings with shade-tolerant conifer seedlings such as western redcedar, and/or western hemlock to take advantage of the more open stand conditions created where cable yarding corridors converge near the landings.
- Planting any sub-soiled roads with red alder to supplement natural alder regeneration.
- Retention of existing coarse woody debris (includes down wood and snags) to the extent possible.
- Any snags that are cut or are knocked over during logging would be left on site for coarse wood enhancement.
- Creation of 1½ Douglas-fir snags per acre from trees that are greater than or equal to 15 inches dbh to help support at least a modest population of woodpeckers in the project area and there in turn provide habitat for secondary cavity users such as northern flying squirrels, the primary prey species of the spotted owl. Snags would be created through a combination of girdling at the base of the trees and girdling within or just below the live crowns. Do *not* select trees for snag creation within or adjacent to *Phellinus weirii* root disease centers, or closer than 150 feet from "open" roads or from a private or state property line.
- Surrounding existing large snags (greater than 18"dbh) or other snags being actively used by wildlife with two or more leave trees to protect them from logging damage.
- Reserving two larger-diameter Douglas-fir trees spaced eight (8) feet or less apart at the rate of approximately *one* such "group" per acre where they occur. At a future date, one of these trees could potentially be converted into a snag, thus creating a "protected" snag for use by wildlife.
- Retaining *any* trees that are cut to create skyline corridors through "no-harvest" buffers on site for coarse wood enhancement.

Scattered infections of laminated root rot, caused by the native fungus *Phellinus weirii,* have created various-sized openings (gaps) as a result of tree killing (primarily Douglas-fir) within the project area. *P. weirii* is estimated to affect about 5 percent of the area on the average. Openings (gaps) created in the canopy are often occupied by shrubs, hardwoods, and/or shade- and disease-tolerant conifer species. Because infected trees are windthrown or die standing, the disease can result in the production of down wood and snags. Most disease centers appear to be less than ¼-acre size and appear to be increasing the level of diversity within the stands. Fresh down Douglas-fir trees encourage the build-up of Douglas-fir beetle populations, which subsequently attack and kill Douglas-fir trees, creating additional snags. No specific treatment is recommended for small scattered areas less than ¼-acre that are infested with *P. weirii*. These small areas are providing small canopy gaps and are adding more recent and larger-sized decay class coarse wood (short-term snags and down wood) to the site. Well-defined root disease pockets more than ¼-acre (generally those exceeding ½-acre) may be reforested with disease-tolerant conifers such as western redcedar, or hardwoods such as red alder or bigleaf maple (all hardwoods are immune to *P. weirii* root rot).

The network of "no-harvest" riparian buffers along with the reserved clumps will provide unthinned areas where a small amount of suppression-related mortality would continue to occur (approximately 10% of the project area).

Release of individual larger-sized overstory conifers and understory conifers in adjacent areas that are *not* included in the density management treatment areas will further enhance the habitat value of the general area.

Comment t: *BLM notes that there is "considerable variation in the relative proportions of Douglas-fir and western hemlock among the stands." Also, there is variation in the overall tree density (150-270 tpa) and relative density index values (52-74%) (page 32). This species, spacing, and structural variation should be enhanced. The BLM does not describe how this will be accomplished. BLM does say that the "proposed residual number of trees per acre ranges from about 59 to nearly 106 trees per acre" and post-treatment "overstory canopy closure is expected to average between 40-60%" (34-35). However, BLM does not describe where or how many acres of stands will he thinned down to the tpa and relative density ranges described. Nor does BLM say why stands will be selected to be thinned to different tpa or relative densities Nor does BLM describe how trees will be spaced.*

BLM response: The acres for each stand type group are shown in Table G2 and the stand type groups are mapped in Appendix I of the silvicultural prescription for this project. The post-treatment stand characteristics (trees/acre, basal area/acre, quadratic mean diameter, and live crown ratio) for each stand type group are shown in Table TR-1 of the silvicultural prescription (see below). Stands are recommended for thinning to various residual trees per acre or relative densities based on the initial stand conditions, and thinning to the recommended densities is expected to put the stands on a trajectory toward development of some late-seral forest conditions while minimizing short-term effects on habitat quality. The silvicultural prescription recommends variable tree spacing.

Table TR-1. Average pre-treatment and recommended post-treatment stand characteristics immediately after thinning as proposed for stands in the Proposed Action in the environmental assessment for the Southern Flame Density Management Project.

Stand type group	Age[1] (yrs)	Pre-treatment stand characteristics					Recommended post-treatment stand characteristics immediately after thinning				
		TPA[2]	BA[3] (sq ft)	QMD (in)[4]	RDI[5]	CR[6]	TPA[2]	BA[3] (sq ft)	QMD (in)[4]	RDI[5]	CR[6]
A	50	153.7	182.9	14.8	0.552	0.445	73.8	130.0	18.0	0.363	0.504
B	38	178.5	184.9	13.8	0.574	0.432	74.0	120.0	17.2	0.341	0.505
C	48	184.8	215.0	14.6	0.652	0.451	72.5	140.0	18.8	0.384	0.523
D	35	271.3	202.0	11.7	0.669	0.392	99.3	110.0	14.3	0.337	0.462
E	41	270.3	228.2	12.4	0.737	0.403	72.7	120.0	17.4	0.340	0.549
F	46	171.9	207.5	14.9	0.625	0.424	74.3	130.0	17.9	0.364	0.490
G	40	214.0	177.8	12.3	0.576	0.498	89.7	110.0	15.0	0.330	0.555
H	43	194.9	176.7	12.9	0.563	0.485	87.2	120.0	15.9	0.352	0.512
I	45	139.4	179.9	15.4	0.534	0.502	66.7	130.0	18.9	0.356	0.569
J	49	149.0	193.7	15.4	0.575	0.407	59.2	130.0	20.1	0.348	0.491
K	35	236.1	150.8	10.8	0.515	0.563	105.6	100.0	13.2	0.316	0.644

[1]Total stand age. [2]Number of trees per acre. [3]Basal area per acre. [4]Quadratic mean diameter. [5]Proportion of maximum Stand Density Index (Reineke 1933). [6]Live crown ratio.

Comment u: *All indications are that this project will be a thin from below, resulting in uniformly spaced stands. The only departure from a capture mortality thin will be clumping a few trees on every five acres. Within twenty years, these stands will have slightly larger trees but still be dense with little horizontal diversity (clumps and gaps).*

BLM response: The silvicultural prescription for this proposed density management project contains a variety of provisions to enhance species, spacing, and structural diversity as discussed in BLM responses s and t above.

Comment v: *BLM describes the work done on ODF lands to promote older forest characteristics. However, ODF direction on the Tillamook-Clatsop is currently changing, with more emphasis on generating volume than promoting older forest structure. The EA failed to disclose this change in direction.*

BLM response: In the cumulative impacts section of the EA, it also states that is possible, however, that some of the Douglas-fir stands thinned or planned for thinning by the Oregon State Department of Forestry may be clearcut if excessive impacts from Swiss occur or are anticipated. This is most likely in the western portion of the landscape cell and zone where the potential hazard from Swiss needle cast is higher. This is what we believed to be true at the time the EA was prepared, and this is what appears to be occurring.

Comment w: *While BLM does review some of the pertinent research about the value and risks of thinning young stands for diversity (page 35-36) the research review is incomplete.*

BLM response: Many of the concepts and findings of some of the other literature in your letter are incorporated into the proposed density management treatment (refer to the BLM response to comment s above).

Comment x: *One of the most compelling and consistent messages of those scientists such as Andrew Carey and Thomas Spies who are leading the way on researching thinning young stands for diversity is to use variable density prescriptions to create a wide variety of stand densities between and among stands.*

BLM response: Variable-density thinning is prescribed for this project (refer to the BLM response to comment s above).